

Applicant: Kari M. Mäki
Application No.: 09/966,424
Response to Office action mailed Sep. 15, 2005
Response filed December 5, 2005

Claim Listing

1. (canceled)
2. (previously presented) The method of claim 20 wherein the service system server is located within the confines of a firewall of the local information network of the production plant.
3. (previously presented) The method of claim 20 wherein the service system server treats the gathered data and processes the data into a format needed in servicing operations.
4. (currently amended) The method of claim 20 wherein authorized users in the service unit and the production plant are identified by [[the]] IP addresses of the computers between which the communications connection is to be established and/or by ID codes and/or passwords of the computer operators.
5. (previously presented) The method of claim 20 wherein the service unit is located geographically remote from the production plant.
6. (previously presented) The method of claim 20 wherein information is collected to the service unit from a plurality of production plants.
7. (previously presented) The method of claim 20 wherein the service system server sends information to the service unit in a standard format.
8. (previously presented) The method of claim 20 wherein information submitted from the production plant is analyzed in the service unit.

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9. (previously presented) The method of claim 20 wherein operational recommendations are sent from the service unit to the production plant.

10. (previously presented) The method of claim 20 wherein information analyzed in the service unit is utilized for determining the timing of scheduled maintenance in the units of the production plant.

11. (previously presented) The method of claim 20 wherein data, video and/or audio signals are transferred between the production plant and the service unit.

12-18. (canceled)

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19. (currently amended) A method for servicing a production plant selected from the group consisting of a paper mill, a board mill, a pulp production plant, and a paper finishing plant; comprising the steps of:

gathering information related to manufacturing processes and machinery of the production plant by at least one information systems;

using the information systems to supervise and control the processes of the production plant;

connecting a service system server to a local information network of the production plant;

inputting said gathered information to the service system server;

sending said input gathered information from the production plant by or through the Internet to a remote service unit having an information network, wherein the information submitted from the production plant is collected and analyzed;

isolating said local information network of the production plant from the Internet by a firewall;

isolating the information network of the service unit from the Internet by a firewall;

transferring the information bidirectionally via the firewalls between the local information network of the production plant and the information network of the service unit in a secured format; and

wherein in addition to the gathered information, video and/or audio signals are transferred between the production plant and the service unit.

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20. (currently amended) A method for servicing a production plant selected from the group consisting of a paper mill, a board mill, a pulp production plant, and a paper finishing plant; comprising the steps of:

continuously collecting gathering data related to manufacturing processes and machinery of the production plant by at least one information systems, and using at least one of the information systems to supervise and control the process of the production plant;

wherein the information systems comprise comprising the following subsystems:

a process control system which receives selected target values of variables relating to the production of pulp, paper, board, or paper finishing, and gathers measurement data from process machinery of the paper mill, board mill, pulp production plant or paper finishing plant, and controls said process machinery;

a production management system holding specifications of ordered products and passing information to the process control system;

a maintenance information system which contains data on spare parts inventory;

a machinery condition monitoring system that logs process parameters including vibrations, circulating lubrication oil system, bearings, and cleanliness of fabrics; and further comprising the steps of:

receiving in a reporting system, data from the process control system, the production management system, the maintenance information system, and the machinery conditioning system, and processing said data into different types of formatted reports;

connecting a service system server to a local information network of the production plant;

inputting said gathered data related to manufacturing processes and machinery of the production plant to the service system server;

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sending said input gathered data from the production plant to a remote service unit by or through the internet, wherein the data submitted from the production plant is collected and analyzed;

isolating said local information network of the production plant from the Internet by a firewall;

isolating an information network of the remote service unit from the Internet by a firewall; and

transferring the data bidirectionally via the firewalls between the local information network of the production plant and the information network of the remote service unit in a secured format; and

scheduling maintenance periods based on the continuous data collection and extending the periods when the units of machinery exhibit continuous operation without any signs of malfunction;

anticipating future needs of servicing based on the continuous data collection showing emerging malfunctions; servicing the production plant selected from the group consisting of a paper mill, a board mill, a pulp production plant, and a paper finishing plant; and installing spare parts installations before actual malfunction occurs.

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21. (new) A method for servicing a plurality of production plants which are: a paper mill, or a board mill, or a pulp production plant, or a paper finishing plant; the method comprising conducting within each production plant the steps of;

continuously gathering data related to manufacturing processes and machinery of the paper mill, or the board mill, or the pulp production plant, or the paper finishing plant by a plurality of information systems comprised of a process control system, a production management system, a maintenance information system, and a machinery condition monitoring system;

utilizing a process control system to receive selected target values of variables relating to the production of pulp, paper, board, or paper finishing, and to gather measurement data from process machinery of the paper mill, board mill, pulp production plant or paper finishing plant, and to control said process machinery;

utilizing a production management system to hold specifications of ordered products and to pass information to the process control system;

utilizing a maintenance information system to contain data on spare parts inventory;

utilizing a machinery condition monitoring system to log process parameters including vibrations, circulating lubrication oil system, bearings, and cleanliness of fabrics; and

receiving in a reporting system data from the process control system, the production management system, the maintenance information system, and the machinery conditioning system, and processing said data into different types of formatted reports;

connecting a service system server to a local information network formed between the plurality of information systems of the production plant;

inputting said continuously gathered data related to the paper mill, or the board mill, or the pulp production plant, or the paper finishing plant, to the service system server; and

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sending said input gathered data from each production plant to a remote service unit which communicates with each of the plurality of production plants, by or through the Internet, wherein the data submitted from the plurality of production plants are collected and analyzed;

isolating said local information network of each production plant from the Internet by a firewall;

isolating an information network of the remote service unit from the Internet by a firewall; and

transferring the data bidirectionally via the firewalls between the local information network of each production plant and the information network of the remote service unit in a secured format; and

scheduling maintenance periods based on the continuous data collection and extending the periods when the units of machinery exhibit continuous operation without any signs of malfunction;

anticipating future needs of servicing based on the continuous data collection showing emerging malfunctions; servicing the paper mill, or the board mill, or the pulp production plant, or the paper finishing plant; and installing spare parts installations before actual malfunction occurs.